

SINGLE HEAD LASER HIGH THROUGHPUT LASER SHOCK PEENING

ABSTRACT

5 A laser unit in a laser shock peening apparatus
for generating a primary laser beam along a primary
beam path includes a pulsed free running oscillator
with only a single lasing rod. An electro-optic
switch external to the free running laser oscillator
is operably disposed along the primary beam path to
10 block the initial slow rise time of the primary laser
beam from the free running oscillator and reject
energy away from the primary beam path. At least one
optical transmission circuit is used to form at one
stationary laser beam from the primary laser beam and
15 direct the stationary laser beam towards at least one
laser shock peening target area. A delay generator
controllably connected to the electro-optic switch is
used to reject energy away from the primary beam path
along a dump path to a dump and sharpen pulses of the
primary laser beam.